WORKSHOP

SATURDAY, 12 APRIL: 8:30AM-10:00AM (LOBO)

CONTROLLED ENVIRONMENTS (CEA): FEEDING THE WORLD, SAVING THE WORLD, AND CREATING NEW WORLDS

Gene Giacommelli (University of Arizona)
Plant production in CE (Controlled Environments) is extending beyond the traditional greenhouse regions to harsher climates, including arid and semiarid regions. Along with this rapid development and "migration" of greenhouse controlled environment agriculture (CEA), new technologies are evolving, and supportive operational information is being developed. Achieving sustainable greenhouse applications will require an interdisciplinary and multi-dimensional approach to solutions, which combines both science and engineering expertise. CEA applications are no longer limited to traditional food and floral crop production, but are now poised to capitalize on plant processes for biopharmaceuticals, bioactive compounds, bioremediation, and bio-energy. It is therefore a critical time for researchers, educators, developers, and the industry to work together for the enhancement of society with CEA-based technologies. CE systems will be developed to help feed the world, while utilizing energy, labor and water resources effectively, and CE will become the platform for applications of new technologies using plant photosynthetic and plant physiological processes for fuel source [biomass energy]; for space colonization life support [recycling all resources]; for remediation of air [carbon sequestration] and water [salts, heavy metals]; and for phtyochemicals and plant-made pharmaceuticals [lycopene, vaccines]. The timing is critical for educating young people about the science and engineering of CE and hydroponic food support systems, and the other CE applications. Outreach and educational programs must be developed to promote the benefits of CE for food production for modern agriculture, as well as, the new technologies of CE for enhancing, restoring, and maintaining critical earth life systems and human quality of life scenarios.